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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,567	07/21/2000	Tomio Amano	13611 (JA9-1999-0054)	5005

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EXAMINER

AKHAVANNIK, HUSSEIN

ART UNIT PAPER NUMBER

2621

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,567

Applicant(s)

AMANO, TOMIO

Examiner

Hussein Akhavannik

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because:

In figure 2a, "Yea" should be changed to "Yes".

In figure 3a-c, "conumers'" should be changed to "consumers'" in order to comply with the specification on page 10, lines 17-18.

Figures 6-7 should have reference numbers in order to explain the figures more clearly in the specification.

Figure 8, should have reference numbers for each step in the flow chart so that the process is clearly explained in the specification.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 1, line 29, "lately" should be changed to "recently".

On page 1, line "OA devices" should be changed to "office appliances".

On page 3, line 13, the status of the Japanese Patent application should be updated to reflect any changes since the filing of this application.

On page 10, line 10, "2)" should be changed to "(2)".

On page 10, line 23, the erroneous "c" should be removed from the end of the sentence.

Appropriate correction is required.

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3. The abstract of the disclosure is objected to because it is more than one paragraph. The abstract must be one paragraph and less than 250 words to be proper. Correction is required.

See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 5, 8-14, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claims 5, 8, 12, and 17, these claims all recite the limitation “one phase or many phases” that is not supported by the specification. It is not understood what the applicant means by “phase” in these claims.

Claims 9-11 and 13-14 are rejected for depending from an indefinite base claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bloomberg (U.S. Patent No. 5,761,686).

Referring to claim 1,

- i. Detecting text image area is illustrated by Bloomberg in figure 4 and explained in column 9, lines 48-63. Most of the image regions (52, 53, 54, ...) in figure 4 correspond to text areas of document 10, illustrated in figure 3.
- ii. Modifying the features of the text image area is explained by Bloomberg in column 11, lines 28-66 and illustrated in figure 9. Bloomberg determines characteristics of the blocks of text areas and then maps the binary data (30 in figure 9) to the blocks exhibiting certain appearance characteristics. Therefore, the features of the text image would be modified resulting in an encoded data block.

Referring to claim 2,

- i. Detecting the text image area corresponds to claim 1i.
- ii. Extracting the features from the text image area is explained by Bloomberg in column 11, lines 36-46. Bloomberg explains that the characteristics, referred to as "display features", may include interblock spacing, block height, block length, and interline spacing.

Referring to claims 3 and 10, the feature comprising either one or a combination of the number of black pixels, the transitive number of black and white pixels, the occurrence frequency of any specific local pattern or the average thickness of a line segment is explained by Bloomberg in column 11, lines 36-46. One of the features explained by Bloomberg is interline spacing, which corresponds to average line thickness. By determining the size of the text area block, the number of lines in the block, and the interline spacing of the lines in the block, it would be inherent that the average line thickness could be calculated. Bloomberg illustrates extracting the number of lines in a text area block in figure 8.

Referring to claims 4 and 11, the image area for embedding or detecting the additional watermarking information being a rectangle circumscribed around a text line is illustrated by Bloomberg in figure 4.

Referring to claims 5 and 12,

- i. Dividing the embedded text image area into two subblocks vertically and two or more subblocks horizontally is illustrated by Bloomberg in figure 8. Bloomberg illustrated the text image area (56 of figure 4) being divided into multiple subblocks, both horizontally and vertically. The system of Bloomberg would inherently divide the text image area into two subblocks vertically if there were only two lines present in the text image area.
- ii. Dividing the subblocks into different upper and lower groups is illustrated by Bloomberg in figure 9 and 10 and explained in column 11, line 28 to column 12, line 29. Bloomberg embeds a binary code a text image area by embedding either a "1" or a "0" into each subblock. Therefore, each subblock receiving a "0" would correspond to a lower group and each subblock receiving a "1" would correspond to an upper group.
- iii. Modifying the features of the respective groups to increase or decrease them to one phase or many phases is illustrated by Bloomberg in figures 9 and 10 and explained in column 11, line 28 to column 12, line 29. Bloomberg modifies the features of each subblock by either embedding a "1" or a "0" in each block. Such an embedding would change the phase of each block from its previous phase, as the subblock would contain additional information corresponding to the binary code.

Referring to claims 6 and 13,

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- i. Detecting the image area corresponds to claim 1i.
- ii. Modifying the features of the text image area corresponds to claim 1ii.
- iii. Embedding one or more bit of embedded additional watermarking information into two or more lines is illustrated by Bloomberg in figures 9 and 10. The additional watermarking information (30) consists of multiple bits of additional information which is embedded into the lines of the document (20).

Referring to claims 7 and 14, detecting one or more bit of embedded additional watermarking information from two or more lines is explained by Bloomberg in column 19, lines 13-56. Bloomberg explains that after the bounding rectangles corresponding to the text boxes are found, then the verification process is performed to ensure that the encoded data blocks are identified correctly. By identifying the encoded data blocks, it is inherent that the one or more bits of watermarking information would be detected.

Referring to claim 8,

- i. Detecting the text image area corresponds to claim 1i.
- ii. Splitting the embedded text image area into two or more subblocks corresponds to claim 5i.
- iii. Dividing the subblocks into two or more groups corresponds to claim 5ii.
- iv. Modifying the features for respective groups to increase or decrease them to one phase or many phases corresponds to claim 5iii.

Referring to claim 9,

- i. Detecting the text image area corresponds to claim 1i.

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- ii. Splitting the embedded text image area into two or more subblocks corresponds to claim 5i.
- iii. Dividing the subblocks into two or more groups corresponds to claim 5ii.
- iv. Integrating the features detected from the subblocks in respective groups is explained by Bloomberg in column 20, lines 21-49. The features that are detected include block lengths, block heights, and vertical baseline position of the blocks. The distribution of these features is then collected as statistical data. Bloomberg explains that the distribution data depends on a number of image characteristic measurements, therefore corresponding to an integration of the feature data.
- v. Determining the value of the information by comparing the integrated values of the groups is explained by Bloomberg in column 21, lines 30-45. Bloomberg explains that the quantized values, produced from the distribution data, are ordered to provide the message bit pattern of the embedded binary data. By ordering the quantized values, it would be inherent that the values would have to be compared to each other.

Referring to claim 15, all the limitations of this claim correspond to claim 1, except an embedding device. Bloomberg illustrates a device capable of embedding information in figure 20.

Referring to claim 16, all the limitations of this claim correspond to claim 2, except a detecting device. Bloomberg illustrates a device capable of detecting information in figure 20.

Referring to claim 17, all the limitations of this claim correspond to claim 8, except an embedding device. Bloomberg illustrates a device capable of detecting information in figure 20.

Referring to claim 18, all the limitations of this claim correspond to claim 9, except a detecting device. Bloomberg illustrates a device capable of detecting information in figure 20.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bhattachariya et al (U.S. Patent No. 6,456,393) – To exhibit embedding information into blocks of a character of text, so that the embedding is imperceptible.

Brassil et al (U.S. Patent No. 6,086,706) – To exhibit changing the features of a text document in order to embed an imperceptible code.

Kamitani (U.S. Patent No. 6,327,385) – To exhibit character and line segmentation.

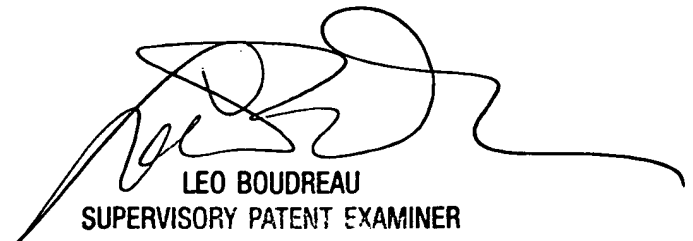
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Hussein Akhavannik
May 1, 2003

H.A.


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